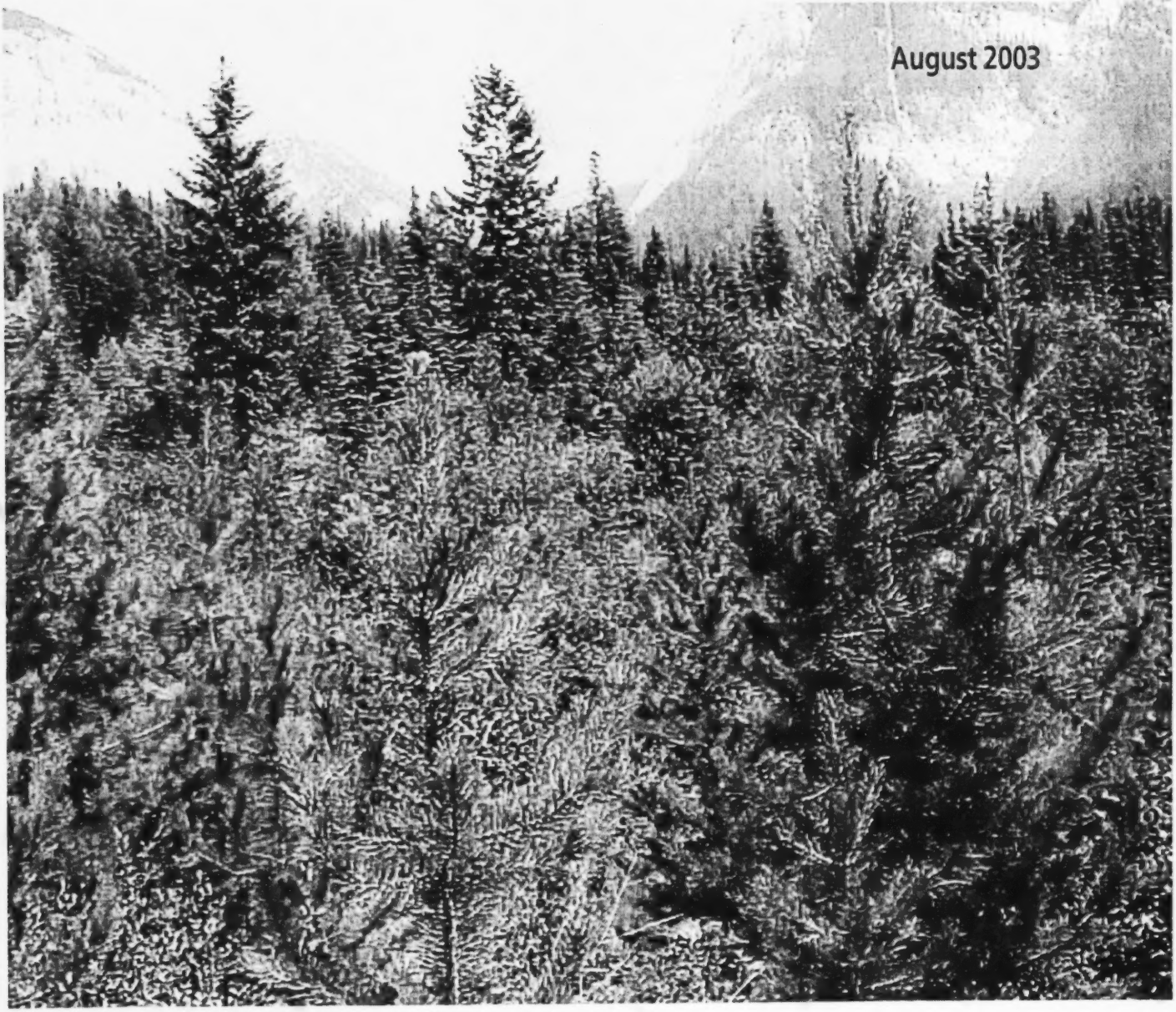
Timber
Supply
Review

GOLDEN TIMBER SUPPLY AREA

Public Discussion Paper

August 2003



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Introduction

The British Columbia Forest Service regularly reviews the timber supply[a] in the timber supply areas[b] (TSAs) and tree farm licences[c] (TFLs) in the province. The timber supply review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester will determine a new allowable annual cut (AAC) for the Golden TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. As provided by new legislation, if the chief forester determines that the allowable annual cut would not likely change significantly, then the next harvest level decision may be postponed by up to five more years.

[a] **Timber supply** - the amount of timber that is forecast to be available for harvesting over a specified time period, under a particular management regime.

[b] **TSA** - an integrated resource management unit established in accordance with Section 7 of the Forest Act.

[c] **TFL** - provides rights to harvest timber, and outlines responsibilities for forest management, in a particular area.

Objectives of the Timber Supply Review are to:

Examine the relevant current forest management practices, public input, and economic, environmental and social factors;

Set a new AAC for the next five years; and

List the information to be improved for future timber supply reviews.

Timber Supply Review in the Golden TSA

The British Columbia Forest Service has now completed the *2003 Golden TSA Analysis Report*, which is summarized in this discussion paper. This discussion paper is intended to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Golden TSA, and to encourage them to provide comments during a 60-day public review period. **Public comments will be accepted until October 7, 2003.**

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement, which along with the summary of public input, will be available to the public upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA

The Golden TSA is located in southeastern B.C. and is administered by the Columbia Forest District offices in Revelstoke and Golden. The TSA covers approximately 902,000 hectares, including valley bottom lands in the Rocky Mountain Trench and Columbia River Valley as well as adjacent rugged mountainous areas. The TSA borders on five national parks.

In 2001, the Golden TSA had an estimated population of almost 6,500 people, of which about 4,000 live in the Town of Golden. This is an increase of about 10 per cent since 1996, primarily due to a ski resort development near Golden.

Forest land resources

The forest land base in the Golden TSA is rich in natural resources including timber, wildlife habitat, recreation and tourism amenities. The mountainous features of the area create a diverse forested environment which provides habitat for a wide variety of wildlife species.

Under the Identified Wildlife Management Strategy, bull trout, American bittern, northern goshawk, long-billed curlew, fisher, grizzly bear, mountain caribou, mountain goat and bighorn sheep are priority species for habitat management in this TSA.

As Figure 1 shows, about 39 per cent of the total Golden TSA land base is considered working forest managed by the British Columbia Forest Service (approximately 351,000 hectares). Currently about 42 per cent of this forest is considered available for harvesting (17 per cent of the total TSA land base).

Over the past several years, the Golden TSA and other areas that border the national parks have experienced a population increase due to their outstanding wilderness opportunities and natural beauty. In the Golden TSA, about 83 per cent of the area is not considered available for timber harvesting and will provide for many recreation and environmental values.

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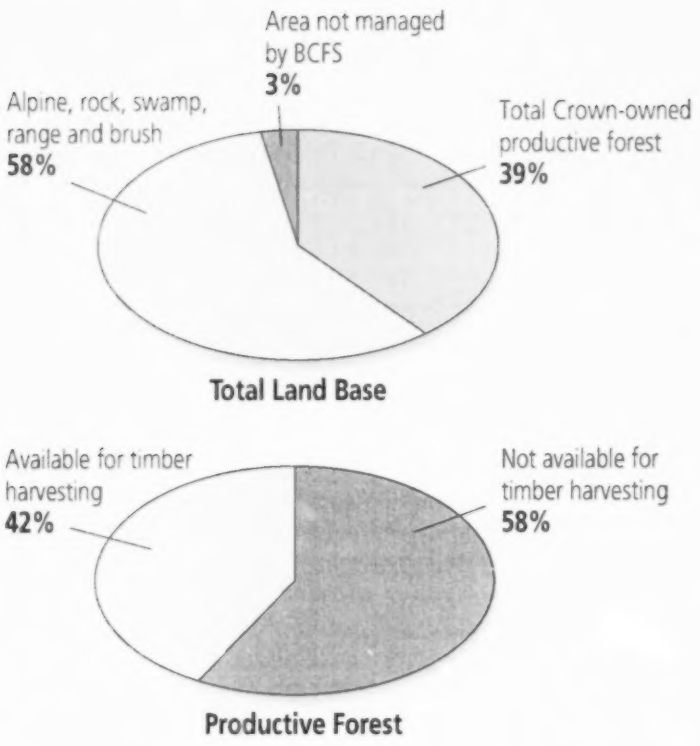


Figure 1. Breakdown of land base for Golden TSA

Land-use planning

In October 2002, government approved a new Kootenay-Boundary Higher Level Plan Order. This new order replaced an order approved in January 2001, which had created a short-term fibre supply problem for forest companies. The planning area covers about 10 million hectares in the southeast corner of B.C., including the Golden TSA. The area under protection remains at 13.5 per cent of the total planning area.

The new order allows more harvesting in mature forests (100 to 250 years old) than previously permitted as unnecessary restrictions were being applied in mature forests where the environmental values were low. Also, strategies for managing old-growth forests (older than 250 years) have improved while still maintaining targets for old forests.

Current allowable annual cut

As part of the last timber supply review, the chief forester set the allowable annual cut in the Golden TSA at 530,000 cubic metres, effective Jan. 1, 2000. This level was a reduction of 10,000 cubic metres a year from the previous allowable annual cut to take into account the transfer of land from the TSA to the woodlot program.

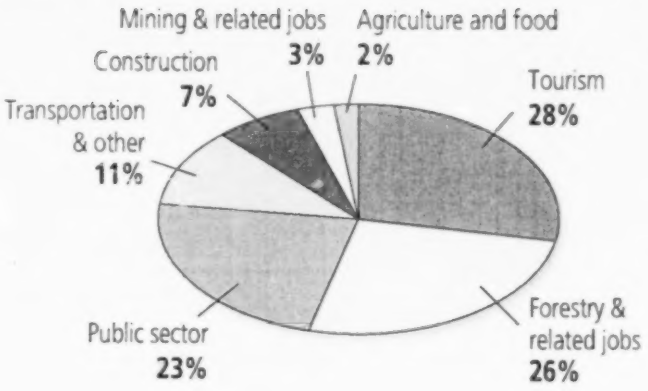


Figure 2. Basic employment by sector, Golden TSA

Source: BC STATS, The 1996 Forest District Tables, April, 1999.

Socio-economic profile

Regional economy

The forest industry is an important part of Golden's economy. Information from the 1996 Census indicates that the forest sector accounted for 26 per cent of the TSA's basis employment (Figure 2).

Tourism-related employment, including accommodation, and parts of food, retail trade and other sectors, accounted for about 28 per cent and the public sector about 23 per cent of the total employment in the Golden TSA.

Since employment does not take into account differences in seasonality and average wages between industries, employment income can be a better indicator of a sector's contribution to the economy. Although tourism accounted for 28 per cent of basic employment, it accounted for 12 per cent of basic income in 1996, reflecting the tendency for lower wages and higher levels of part-time employment. In comparison, forestry and the public sector accounted for 26 per cent and 23 per cent of total TSA income, respectively, reflecting higher average wages in these sectors.

Other important sectors are transportation and construction, due to Golden's position on national east-west transportation routes.

Table 1 illustrates the contribution of the forest industry associated with the Golden TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the actual harvest level of 405,000 cubic metres a year (2000 - 2002).

Table 1. Summary of the Contribution of Forestry to the Local and Provincial Economy, Golden TSA

	TSA	Provincial
Direct employment (person-years)	465	596
Total employment (person-years)	655	1,067
Total employment income ($2002 millions/year)	29.4	45.0
Provincial gov't revenues ($2002 millions/year)	N/A	9.3

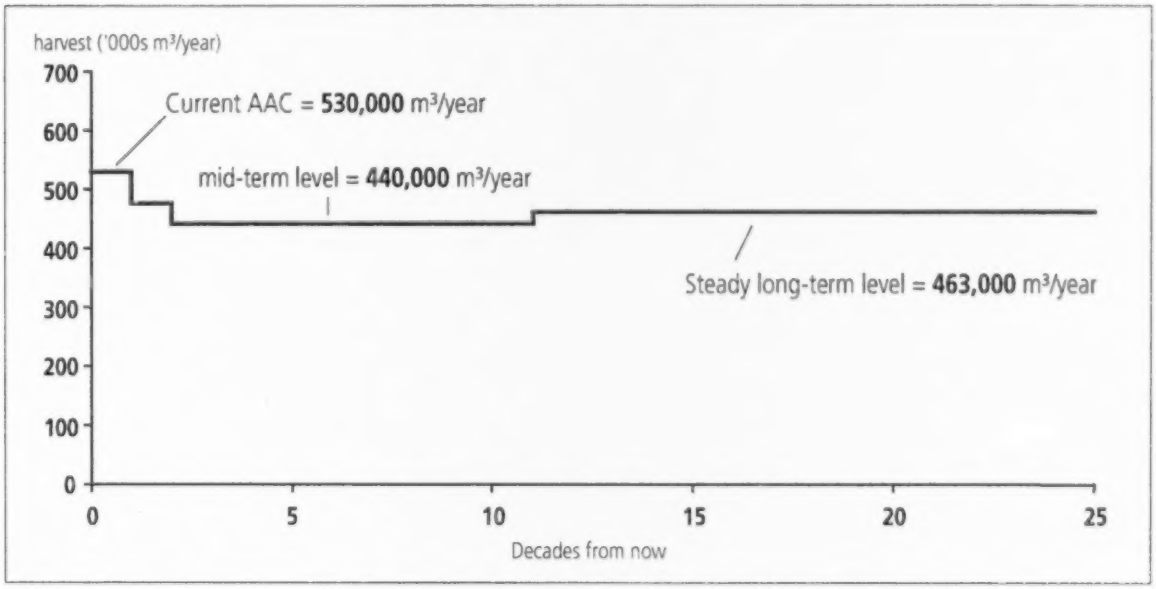
Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. The base case forecast illustrates the effect of current forest management practices on timber supply, using the best available information. The base case forecast is not a recommendation for an AAC, but rather it is one of many sources of information the chief forester will consider when setting the AAC.

Figure 3 shows the results of the timber supply analysis that suggests the current allowable annual cut of 530,000 cubic metres could be maintained for the next 10 years. Then the forecast shows a gradual and controlled decline in the timber supply in the medium to long term. After 11 decades, a long-term harvest level of 463,000 cubic metres a year is achieved. This level is 12.6-per-cent lower than the current allowable annual cut.

Compared to the 1998 timber supply analysis, the timber harvesting land base decreased by about seven per cent. This is mainly due to improvements in the assessment of the operable land base. This decrease was partially offset by increased yield estimates for some mature stands based on new forest inventory and recognition of genetically improved seed. As well, the new analysis reflects the Kootenay-Boundary Higher Level Plan Order which was approved by government in October 2002. The new order reflects conservation of biodiverity, wildlife habitat, water quality and other forest values, and is less restrictive of harvesting in mature forest. On balance, the 1998 forecasts are similar to those in the 2003 analysis report.

Figure 3. Base case timber supply forecast —Golden TSA, 2003



Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how the timber supply might be affected by uncertainties in inventory information and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how uncertainties and risks, or any changes in information, might affect timber supply.

For the Golden TSA, a number of sensitivity analyses were conducted to examine the stability of the timber supply in light of uncertainties. Four key sensitivity analyses are described below. For a complete listing of sensitivity analyses, please refer to the *2003 Golden TSA Analysis Report*.

Uncertainty about the size of the timber harvesting land base

Historically harvesting has occurred more in the southern parts of the Golden TSA. In the north, there are several limiting factors such as poorer quality timber and higher operating costs. If the less economic forests in the north were excluded, the timber harvesting land base would be about five per cent smaller. While harvest levels projected in the short term would not be affected, the long-term harvest level would decrease by about five per cent.

Another concern has been the merchantability of older hemlock forests. In the base case forecast, hemlock stands were excluded if they were older than 140 years and hemlock comprised more than 80 per cent of the volume. A sensitivity analysis showed that if older hemlock (over 140 years old) forests with more than 50 per cent hemlock were excluded, then the size of the timber harvesting land base decreased by 2.5 per cent. The harvest level projected in the short-term would not be affected, however the long-term level would decrease by 1.8 per cent.

Uncertainty in the volume within the existing stands.

Since the last timber supply review, a new inventory has been undertaken for the Golden TSA. For the new inventory data applied in the 2003 analysis, on average the existing volumes are about six per cent higher compared to the previous inventory. Inventory work is not yet complete for the Golden TSA and some uncertainty remains about the existing stand volumes.

Sensitivity analysis shows that changes to the estimates of existing stand volumes could impact the short- and mid-term timber supply. If the existing stand volumes were increased by 10 per cent, then the initial

harvest level could be maintained for two decades longer than in the base case forecast, and in the mid term the harvest level would be 5.2 per cent higher compared to the base case.

If the existing stand volumes were decreased by 10 per cent, then the initial harvest level would decline by about 21 per cent to 419,000 cubic metres a year, as shown in Figure 4.

Uncertainty of the requirements for mountain caribou.

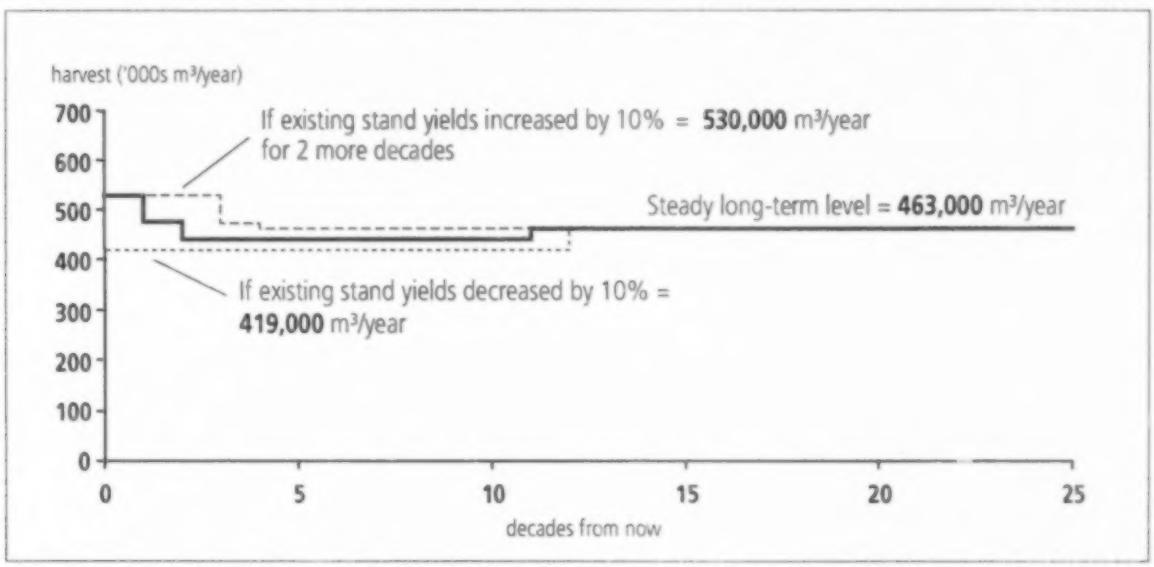
The northern part of Golden TSA overlaps the range of one of only three viable populations of mountain caribou in western Canada. There has been significant scientific work examining and discussing the management guidelines and habitat maps for these mountain caribou.

In the base case forecast, the 1997 higher-level plan map was used to reflect forest cover requirements for seasonal caribou habitats. This map identified 20,731 hectares of the timber harvesting land base (13.5 per cent) as caribou habitat.

Since 1997, revisions have been made to the higher-level plan caribou map, and the modified area covers about 23,790 hectares or 15.5 per cent of the timber harvesting land base. A sensitivity analysis shows that if the caribou habitat area was increased, the long-term level would only be impacted by about 0.6 per cent.

However, as Figure 5 shows, there is a potential impact if significantly more (60 per cent rather than 40 per cent) old and mature forest is retained in caribou areas as compared to the base case forecast. If 60 per cent is retained, then the initial harvest level would decline by 19 per cent to 428,000 cubic metres a year; the long-term harvest level would only decrease by 2.8 per cent.

Figure 4. If existing stand volumes have been overestimated or underestimated by 10 per cent — Golden TSA, 2003



Uncertainty in Old-Growth Site Index Estimates.

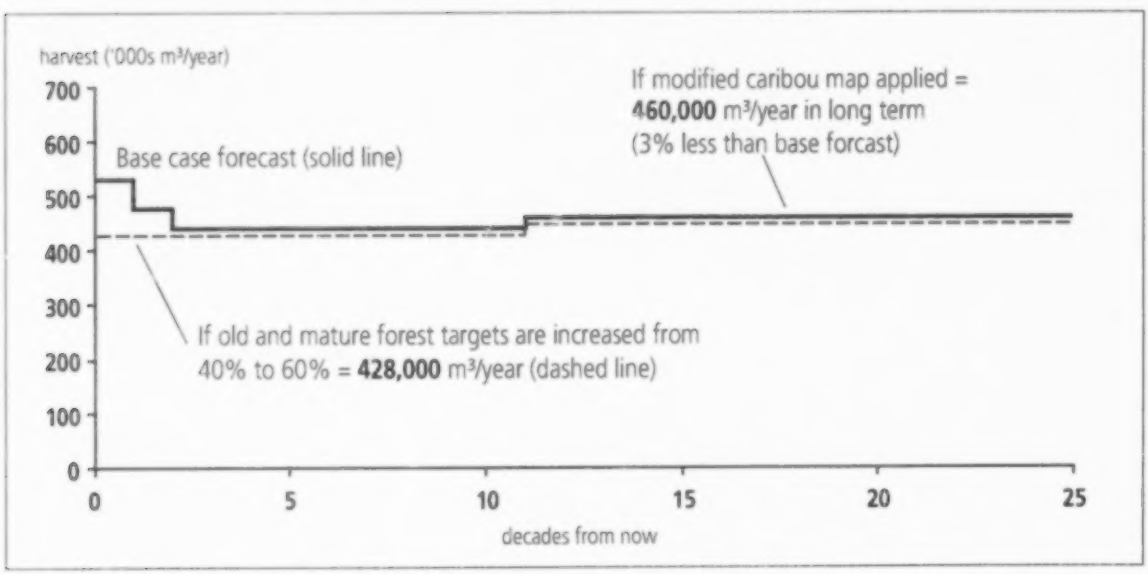
The results of provincial old-growth site index studies suggest that the estimated future productivity of sites currently occupied by old-growth stands may be underestimated. This research compares the measured productivity of existing regenerated stands with the measured productivity of old-growth stands growing on ecologically similar sites. The measured productivity of the regenerated stands has been found to be generally higher than the inventoried productivity of the old-growth stands.

These results are based on the maximum potential site productivity that might be achieved under ideal conditions. However, in the field, regeneration and subsequent growth does not always occur under ideal conditions due to factors such as competition from brush or overstocking. Therefore, many stands may not reach the maximum potential productivity suggested by research. Nonetheless, the results of the old-growth site index studies are of interest in the Golden TSA since stands older than 140 years comprise 29.5 per cent of the timber harvesting land base.

While the results of the old-growth site index studies suggest that the future productivity of current old-growth stands in the Golden TSA may be underestimated, no specific studies have been undertaken in the TSA to measure the amount of underestimation.

A sensitivity analysis was completed that showed if the old-growth site index (veteran- and paired-plot) results were applied, the mid-term harvest level would increase by 2.9 per cent and the long-term harvest level would increase by nine per cent.

Figure 5. Harvest forecasts reflecting modifications to caribou habitat map and to forest cover requirements for caribou habitat — Golden TSA, 2003



Implications of changes in the AAC

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The current AAC of 530,000 cubic metres, if fully harvested and processed, can support about 779 person-years of direct forestry employment and a further 615 person-years of indirect and induced employment across the province. Residents of the Golden TSA account for about 78 per cent of the direct employment. The local employment income associated with this direct, indirect and induced employment is projected to be about $39 million a year. The provincial government could collect about $12 million a year, depending on the level of harvest, in stumpage and related payments, other industry taxes and provincial income taxes.

Your input is needed

Public input is a vital part of establishing the allowable annual cut. Feedback is welcomed on any aspect of this discussion paper, the *2003 Golden TSA Analysis Report* and other issues related to the timber supply in the Golden TSA. Forest Service staff would be pleased to answer questions to help you prepare your response. Please send your comments to the forest district manager at the address below. **Your comments will be accepted until October 7, 2003.**

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:

District Manager
Columbia Forest District
Box 9158 RPO#3
Revelstoke, BC V0E 3K0

(or physical address: 1761 Big Eddy Rd. in Revelstoke)

Phone: (250) 837-7611,
Fax: (250) 837-7626

or

Regional Manager
Southern Interior Forest Region
515 Columbia Street,
Kamloops, BC V2C 2T7

Phone: (250) 828-4131,
Fax: (250) 828-4154

Or electronically mail to Ken Gibson:
Ken.Gibson@gems5.gov.bc.ca

Visit our website at http://www.for.gov.bc.ca/tsb

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the *Forest Act*, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be measured and analyzed – others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.